ABSTRACT OF THE DISCLOSURE

A system and method for historical database training of a support vector machine (SVM). The SVM is trained with training sets from a stream of process data. The system detects availability of new training data, and constructs a training set from the corresponding input data. Over time, many training sets are presented to the SVM. When multiple presentations are needed to effectively train the SVM, a buffer of training sets is filled and updated as new training data becomes available. Once the buffer is full, a new training set bumps the oldest training set from the buffer. The training sets are presented one or more times each time a new training set is constructed. A historical database of time-stamped data may be used to construct training sets for the SVM. The SVM may be trained retrospectively by searching the historical database and constructing training sets based on the time-stamped data.